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Backgrounds and characteristics of arsonists

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ABSTRACT

The aim of this study was to gain more insight in the backgrounds and characteristics of arsonists. For this, the psychiatric, psychological, personal, and criminal backgrounds of all arsonists ($n=25$), sentenced to forced treatment in the maximum security forensic hospital "De Kijvelanden", were compared to the characteristics of a control group of patients ($n=50$), incarcerated at the same institution for other severe crimes.

Apart from DSM-IV Axis I and Axis II disorders, family backgrounds, level of education, treatment history, intelligence (WAIS scores), and PCL-R scores were included in the comparisons. Furthermore, the apparent motives for the arson offences were explored. It was found that arsonists had more often received psychiatric treatment, prior to committing their index offence, and had a history of severe alcohol abuse more often in comparison to the controls. The arsonists turned out to be less likely to suffer from a major psychotic disorder. Both groups did not differ significantly on the other variables, among which the PCL-R total scores and factor scores. Exploratory analyses however, did suggest that arsonists may differentiate from non-arsonists on three items of the PCL-R, namely impulsivity (higher scores), superficial charm (lower scores), and juvenile delinquency (lower scores). Although the number of arsonists with a major psychotic disorder was relatively low (28%), delusional thinking of some form was judged to play a role in causing arson crimes in about half of the cases (52%).

1. Introduction

Arson is a crime with an enormous impact. Worldwide, it leads to major financial damage, serious injury, or even death (Geller, 1992). In the Netherlands, arson offenders can be forced to reside in a so-called 'TBS hospital'; a specialized institution for forensic psychiatric care. Patients in these TBS hospitals receive intensive psychiatric care within a maximum security environment (van Marle, 2000).

According to Dutch Law, individuals can be sentenced by the court to forced hospitalization in a TBS hospital as a consequence of the severity of their crimes in combination with mental deficiencies or mental disorders, playing a causal role in the offending behavior. In addition, only crimes for which at least four years of imprisonment is imposed can lead to a TBS measure. The purpose of the TBS order is to protect society against dangerous offenders for whom a high risk of recidivism is assumed (Hildebrand & de Ruiter, 2004). A judge decides every one or two years about continuation or termination of the TBS sentence, based on the reports of caregivers about treatment progress and risk assessment (Nijman, de Kruyk, & van Nieuwenhuizen, 2004).

1.1. Defining the definition problem

In the literature, various definitions of arson crimes can be found (Barnett & Spitzer, 1994; Geller, 1992). Whereas 'arson' is generally defined as deliberately setting fire to an object of any kind or person, 'firesetting' is considered to be a wider concept as it does neither imply a conscious intention of committing the crime (Barnett, Richter, & Renneberg, 1999), nor does it discriminate between background characteristics, such as the causes, effects, or motives (Bradford, 1982; Molnar, Keitner, & Harwood, 1984; Ritchie & Huff, 1999). When fire is raised primarily as a result of difficulties to control impulses, the term 'pyromania' is used (Sakheim & Osborn, 1999). Pyromania refers to a pathological form of firesetting and is described in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). Along with kleptomania and pathological gambling, it is categorized under "Impulse-Control Disorders Not Elsewhere Classified" (American Psychiatric Association, 1994).

Pyromaniacs are assumed to experience pleasure, satisfaction, or relief while committing their offences (Barnett & Spitzer, 1994; Geller,

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1992). These offenders usually have a strong fascination with fire (Ritchie & Huff, 1999). However, despite of the fundamental differences in these three concepts, arson, firesetting, and pyromania are not always used distinctively (Plinsinga, Colin, & de Jong, 1997). As a consequence, in the presentation of our results, we have chosen to use the term arson uniformly, rather than firesetting or pyromania.

1.2. Motives for arson

Apart from differences in terminology, a broad range of motives for arson can be found in the literature. The underlying driving forces vary from 'innocent' child's play to intentional murderous violence (Levin, 1976; Prins, Tennent, & Trick, 1985; White, 1996). Of the various motives for arson crimes, revenge is regarded to be the most important one by some authors (White, 1996). Although many earlier attempts have been made to categorize motives, none of these classifications seem without flaws (Barnett & Spitzer, 1994; Geller, 1992). However, six often mentioned motives for arson are: vandalism, excitement, revenge, firesetting as an act of terrorism, fires raised with financial gains as the objective, or fires raised as an act to conceal criminal behavior (Douglas, Ressler, Burgess, & Hartman, 1992). Apart from that, delusions are considered to be an important cause of many arsons (Ritchie & Huff, 1999). In this study, we will use a classification system that combines the six motives from Douglas et al. (1992) with the delusional motive, as proposed by Ritchie and Huff (1999).

1.3. Psycho(patho)logy of the arson criminal

As far as their background characteristics are concerned, arsonists often seem to have been raised in foster families or in adoptive homes (Blumberg, 1982). The majority of arsonists have not finished high school (Bradford, 1982) and they relatively often have received psychiatric treatment in childhood or during adolescence (Kolko, 1985). Indeed, arson is often associated with mental disorders (Barnett & Spitzer, 1994; Geller, 1992; Ritchie & Huff, 1999). Controlled studies, comparing arsonists with other delinquents, referred to forensic psychiatric hospitals, have yielded results suggesting that personality disorders prevail among arson offenders (Bradford, 1982). Apart from that, arsonists are frequently suffering from many psychiatric symptoms, such as psychosis, depression, and paranoia (Ritchie & Huff, 1999). As far as mental retardation in arsonists is concerned, inconsistent results have been reported (Geller, 1992). In general, arsonists are found to have lower abilities to control their impulses (Barnett & Spitzer, 1994). Arson offenders, consequently, show destructive behavior and excessive alcohol abuse (Räsänen, Hirvenoja, Hakko, & Väisänen, 1995; Räsänen, Puumalainen, Janhonen, & Väisänen, 1996). Finally, social skills of arson offenders are believed to be poor on average (Bradford, 1982).

A review of the literature justifies the conclusion that the number of studies on the backgrounds and characteristics of arsonists is limited (Barnett et al., 1999; Kocsis & Cooksey, 2002). Also, sample sizes in earlier research are rather small, as most investigations concern case reports (Dolan, Millington, & Park, 2002; Räsänen et al., 1995). Apart from that, many studies on this topic had methodological shortcomings (Barnett & Spitzer, 1994). In other words, there is a lack of knowledge of the background characteristics of arsonists and their motives for committing their crimes (Barnett et al., 1999; Blumberg, 1982; Molnar et al., 1984). Yet, the literature indicates that one in every four arsonists is a recidivist (Kolko, 1985). A recent study among Dutch TBS patients also suggested that arsonists were relatively likely to relapse into severe crimes, as compared to perpetrators of other types of offences (Philipse, 2005). The poor prognosis of mentally disordered arsonists may be due to the lack of information about arsonists (Harris & Rice, 1996), which may interfere with developing more effective therapeutic interventions for arsonists (Barnett, Richter, Sigmund, & Spitzer, 1997; Rice & Harris, 1996).

2. Methods

The main goal of this study was to examine typical characteristics of arsonists. An additional aim was to provide insight into the motives of the arson criminal. The following hypotheses were tested on the basis of a sample of forensic psychiatric TBS patients residing at the hospital "De Kijvelanden":

(1) compared to non-arson offenders, arsonists are more likely to have been raised in broken families;
(2) compared to non-arson offenders, arson offenders have a lower level of education;
(3) compared to non-arson offenders, arson offenders have more often received psychiatric treatment in the past;
(4) compared to non-arsonists, DSM-IV personality disorders are more prevalent in arsonists;
(5) alternatively, it was tested whether DSM-IV psychotic disorders are more prevalent in arsonists in comparison to non-arson offenders;
(6) arsonists were more often abusing alcohol during the period in which they committed their crime(s), as compared to control patients;
(7) compared to non-arsonists, mental retardation is more prevalent among arsonists;
(8) arson offenders have more difficulties controlling their impulses than non-arson offenders, as should be expressed in terms of higher scores on factor 2 of the PCL-R and on item 14 of this instrument measuring impulsivity.

2.1. Setting

A between subjects design was carried out in two groups of psychiatrically disordered offenders: arsonists and non-arsonists. The subjects were selected from all consecutive admissions to forensic psychiatric hospital "De Kijvelanden" by means of the hospital's computer information system.

This hospital is one of the 11 specialized TBS-institutions in the Netherlands. At the time of this study, the hospital had an inpatient capacity of 92 male forensic patients, who had been sentenced to TBS treatment by the Dutch court.

2.2. Study sample

From its opening day onwards (November 11th, 1996), a total of 25 patients had been admitted to "De Kijvelanden" on the basis of (repeated) arson. In other words, for these patients, arson offences were the main reason for their involuntary admission to the TBS hospital under study (i.e., their index offences). The vast majority of these arsonist offenders (80%) had served time earlier for other arson crimes ($M = 1.6$; $SD = 2.0$) in the past. Mean total number of previous convictions, varying from light to severe offences, was 5.3 ($SD = 5.7$; range = 0–20). Mean age at admission in "De Kijvelanden" of the 25 arsonists was 36.6 years ($SD = 9.2$; range = 20–56).

The control group ($n = 50$) consisted of a randomly selected group of non-arsonist offenders, who were also involuntarily admitted to "De Kijvelanden". To be eligible for the control group these offenders should not have been convicted for arson as an index offence, nor should they have had any earlier conviction for arson in their history. Mean age at admission in the non-arsonist group was 35.9 years ($SD = 8.0$; range = 24–58). Mean number of previous crimes was 5.0 ($SD = 5.9$; range = 0–22). The index offences in this group included: (attempted) murder/manslaughter (52%), aggravated assault/manhandling (18%), sexual offences against minors (age below 16; 14%),

sexual offences against adults (age of 16 or above; 8%), and armed robbery (8%).

Descriptive statistics of all subjects ($n=75$) are summarized in Table 1. The two groups of delinquents did not differ significantly on any of the variables ($p>.05$).

2.3. Axis I and Axis II disorders

From the patients' files, we gathered the variables concerning psychiatric disorders that were involved in our hypotheses. In particular, data were collected with regard to the presence of personality disorders, psychotic disorders, alcohol abuse, and substance abuse. The DSM-IV diagnoses were retained from psychiatric pre-trial assessments for the court. These specific reports are made after intensive examination of the patient by two mental health professionals, which at least included one psychiatrist. These caregivers' reports aim to inform the court about both the psychiatric condition of the patient, and the association between this condition and the criminal behavior.

2.4. Background characteristics

Personal and criminal background characteristics were also recorded from the patient file. Personal features included childhood, in particular whether patients were raised in their natural biological environment, level of education, and onset of psychiatric treatment. Criminal variables (age at first conviction and amount of earlier convictions) were collected from previous arrest records. We also included the results of intelligence assessments (WAIS-R or WAIS-III scores) to determine the cognitive abilities. According to the DSM-IV (American Psychiatric Association, 1994), a total intelligence score of 70 or below indicates mental retardation.

2.5. Psychopathy scores

Psychopathy scores were obtained with the Psychopathy Checklist Revised (PCL-R) from Hare (1991, 2003). The PCL-R consists of 20 items measuring personality traits and behaviors. Items are scored on 3-point scales, ranging from 0 (item does not apply) to 2 (item does definitely apply). Reliability and internal consistency of this widely used instrument is high. Cronbach's alpha for the PCL-R total score is .87 (see Hildebrand & de Ruiter, 2004), when used by experienced and trained raters (Cooke & Michie, 2001). The PCL-R is routinely completed closely after admission to forensic psychiatric hospital "De Kijvelanden" by trained raters. Item 14 of the PCL-R assesses impulsivity. The scores on this specific item will be used in the current study to test the hypothesis stating that arsonists are more impulsive than non-arsonists. Apart from the total PCL-R psychopathy score, PCL-R items also construe two factors: (1) callous and remorseless style of relating to other people and (2) unstable and socially deviant lifestyle (Hare, 1998). This second factor is assumed to measure a lack of controlling impulses. Therefore, it was anticipated that arsonists may have high scores on this factor.

Table 1
Descriptive statistics of the study sample (arsonists versus non-arsonists).

Characteristic	Arsonists ($n=25$)		Non-arsonists ($n=50$)	
	M	SD	M	SD
Present age	41.4	9.6	41.5	8.0
Age at admission	36.6	9.2	35.9	8.0
Age at first conviction	25.3	6.1	24.7	8.8
Age at first treatment in a mental health care setting	23.4	10.1	23.5	9.0
Amount of earlier convictions	5.3	5.7	5.0	5.9

2.6. Motives

Finally, we explored the motives for the acts of arson within the group of arsonists. These apparent motives were derived from the patients' records. To this end, the files were searched and analysed on this information by two independent researchers, in order to be able to check for interrater reliability. The two independent raters were required to select only one motive for each arsonist from a list of seven options (see introduction section), derived from the work of Douglas et al. (1992) and Ritchie and Huff (1999). Afterwards, Cohen's kappa was calculated to assess interrater agreement. Cohen's kappa was 0.76, which can be regarded as rather high (Lambert & Hill, 1994). In case of disagreement, the motive as assessed by the first author of this manuscript was used.

3. Results

In Table 2, all statistical comparisons between arsonists ($n=25$) and non-arsonists ($n=50$) are summarized. The first three hypotheses involved historical backgrounds of arsonists versus non-arsonists. More specifically, these hypotheses sought to investigate the environment in which arsonists were raised, their educational level, and whether or not patients had received earlier psychiatric treatment in the past. A significant result ($\alpha=.05$) was only found concerning psychiatric treatment in the past [$\chi^2(1)=6.1$, $p=.014$]; arson offenders had received psychiatric treatment more often.

The following four hypotheses of this study concerned diagnostical features (having been diagnosed with a psychotic disorder or a personality disorder, substance abuse, and intellectual abilities). Both groups differed significantly in the number of subjects with Axis I psychotic disorders [$\chi^2(1)=4.5$, $p=.034$]; the 25 arson offenders in the current sample were less likely to have been diagnosed as suffering from a major psychotic disorder, as compared to the 50 non-arson offenders. A significant result was also found for the sixth hypothesis, concerning alcohol abuse. The arson offenders, admitted to our forensic psychiatric hospital, clearly had more problems with alcohol abuse than the controls [$\chi^2(1)=13.6$, $p<.001$]. To examine whether the two groups differed in substance abuse other than alcohol, such as heroin, cocaine, XTC, or cannabis, data about abuse of these psychoactive substances in both groups were also analysed. Nevertheless, arson offenders and non-arson offenders did not differ regarding substance abuse other than alcohol.

Table 2
Comparisons between arsonists and non-arsonists.

Characteristic	Arsonists ($n=25$)		Non-arsonists ($n=50$)		χ^2-value or t-value
	n	%	n	%	
Personality disorder	17	68.0	26	52.0	2.713[a]
Psychotic disorder	7	28.0	27	54.0	4.486[a,*]
Alcohol abuse	12	48.0	5	10.0	13.547[a,*]
Substance abuse[c]	19	76.0	35	70.0	.294[a]
Broken home	13	52.0	22	44.0	.423[a]
High school completion	2	8.0	4	8.0	.000[a]
Psychiatric treatment in the past	21	84.0	30	60.0	6.064[a,*]
Mental retardation	2	8.0	4	8.0	.000[a]
IQ score (total)	97.5	9.6	103.2	12.1	1.555[b]
PCL-R score (total)	17.4	5.8	18.3	7.0	.358[b]
PCL-R score (factor1)	7.8	3.3	8.1	3.6	.145[b]
PCL-R score (factor 2)	8.4	2.7	8.5	3.5	.053[b]
PCL-R score (item 1)	0.3	0.6	0.7	0.8	4.233[b,*]
PCL-R score (item 14)	1.7	0.6	1.3	0.7	5.036[b,*]
PCL-R score (item 18)	0.2	0.5	0.6	0.8	4.550[b,*]

[a] χ^2-value.
[b] t-value.
[c] substances other than alcohol.
* $p<.05$.

No difference in average intelligence as assessed with the WAIS was found between the two groups. In case the intelligence quotients (IQ) were divided into two categories, namely mental retardation (IQ scores of 70 or below) versus higher IQ scores, the results remained unchanged.

Arson offenders and non-arson offenders did not differ on PCL-R total scores. In line with the eighth hypothesis about impulsivity, however, we did find significant differences on item 14 [$t(71) = 5.0$, $p = .028$], which suggests that arsonists may have more difficulties controlling their impulses than non-arsonists. Contrary to expectation, no significant difference was found between the PCL-R factor 2 scores between the two groups (see Table 2). Further exploratory analyses on PCL-R items suggested substantial differences on item 1 assessing superficial charm [$t(71) = 4.0$, $p = .043$], and item 18, that concerns juvenile delinquency [$t(71) = 4.6$, $p = .036$]. On both these two items arsonists scored lower than controls.

Finally, we explored the motives of the arson offenders in our sample. From the seven possible motives included in our research, only three motives appeared to be prevalent within our sample of arsonists. These motives were: arson stemming from delusional thinking (52%), arson driven by feelings of revenge (36%; e.g., getting even with a cheating partner), and arson out of excitement or kick (12%; e.g., experiencing sexual excitement while playing with fire). In other words, although major psychotic disorders were relatively rare among the arsonists, forms of delusional thinking were judged to play a role in committing arson in about half of the cases. A closer look at these cases revealed that some of these patients claimed to have set fire under the influence of acoustic (imperative) hallucinations or delusional thinking, but the final diagnosis in the pre-trial reports was not one of a major psychotic disorder. Two of the patients who were judged to have committed arson, due to delusions, had a diagnosis of borderline personality disorder. This may explain the temporary exacerbation of delusional symptoms connected to their arson crime.

4. Discussion

The main findings of this study can be summarized as follows. Male arson offenders in our sample had received more psychiatric treatment in the past, displayed a higher level of alcohol abuse, and were less likely to be diagnosed as suffering from a psychotic disorder. Additionally, arsonists discerned from non-arsonists on specific PCL-R item scores: impulsivity (higher scores), superficial charm (lower scores), and juvenile delinquency (lower scores).

Delusions were judged to be the most prevalent cause (52%) for committing arson crimes in our sample. In contrast to this finding, major psychotic disorders were less prevalent in arsonists (28%) than in non-arsonists in our sample (54%). Several earlier studies tended to show opposite results; in non-European studies psychotic disorders have been found to be more prevalent in arson offenders, compared to other criminal delinquents (Ritchie & Huff, 1999). The question arises whether psychotic disorders, such as delusional disorder, may have been underdetected in our sample of arsonists.

The Dutch TBS-system, which is one of the oldest treatment systems for psychiatrically disordered criminals, traditionally has had a strong focus on personality disorders and psychopathic traits, as well as on the influence of early developmental problems in the upbringing of the offenders. Alternatively however, it may be that arsonists tried to reduce accountability for their crimes by 'hiding' themselves behind claims of delusional thinking or acoustic hallucinations, in order to conceal their real motives, such as sexual arousal from setting fire. Possibly, the behavioral scientists advising the court discarded these reasons, claimed by the arson offenders, reaching (cluster-B) personality disorders as a diagnosis instead of major psychotic disorders.

The relatively high prevalence of alcohol abuse in the arsonists in our sample is in line with other findings in the literature (Räsänen et al., 1995, 1996). It is important to point out that these differences only concern alcohol. No significant results were found pertaining to substances other than alcohol in our sample. Compared to other criminal offenders, arsonists were also found to have lower abilities to control their impulses (Barnett & Spitzer, 1994), as measured on a specific PCL-R item regarding impulsivity. It might have been more adequate, however, to assess impulsivity by making use of specific measures, such as the Barratt Impulsivity Scale (BIS).

We found no differences between arson offenders and non-arson offenders with regard to the prevalence of personality disorders, which is often suggested in literature (Barnett & Spitzer, 1994; Bradford, 1982; Ritchie & Huff, 1999), but because of our limited sample size, we were unable to investigate potential differences in types of personality disorders. In addition, mental retardation was not found to be more common among arsonists. Finally, family background factors and level of education also did not seem to discern arsonists from non-arsonists. Hence, arson offenders and non-arson offenders in a forensic psychiatric setting may differ less than is often suggested.

Probably, our results that are in contrast with earlier findings can be ascribed to the selective sample that resides in a TBS hospital. Furthermore, although we involved the total population of arsonists, incarcerated at TBS hospital "De Kijvelanden" from its opening day onwards, this specific group of offenders was rather small. Therefore, our findings should be regarded with considerable caution. It is recommended for future research that this study is replicated in a larger group of arsonists, for example by cooperating with other TBS hospitals in the Netherlands, to draw more definite conclusions. For a broader profile, it would be necessary to compare arsonists and non-arsonists from this TBS setting with arsonists and non-arsonists from other settings, such as prisons, and with pathological firesetters in a standard psychiatric hospital.

As stressed in earlier research, 'the general arsonist' does not seem to exist. An arsonist who experiences intense pleasure or even sexual excitement of setting fires clearly differs from an arsonist who sets a fire out of anger towards a certain person (i.e., the revenge motive). For the latter arsonist a more general Aggression Replacement Training (ART) might possibly be suitable, whereas this may not be the case for arsonists who get a kick out of setting fires. For these reasons, further research is needed concerning the motivations of arson crimes, in order to choose which therapy is most appropriate for the offender.

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